

University of Pretoria

**Launch of the Institutional Research Theme and
Institute for Food, Nutrition and Well-being**

Indaba Programme

Indaba A:

**Overcoming constraints to livestock production for food
security**

**Monday, 28 May 2012
Graduate Centre L 1- 70**

Indaba A: Overcoming constraints to livestock production for food security

High quality protein from livestock (meat, milk and eggs) is essential for the promotion of good health and development but is constrained by limited feed resources, water quality, soil and ecological variability, diseases, inappropriate management systems, and the effects of Climate Change. This Indaba will discuss novel multidisciplinary strategies involving livestock production systems and animal health programmes for efficient livestock production by commercial and small-scale farmers.

Programme:

- 13:30 Welcome by the Chair - Prof Gerry Swan, Dean of the Faculty of Veterinary Science
- 13:40 Outline of Theme A and the IRT – Prof Ned Donkin, Theme Leader for Theme A, Institute for Food, Nutrition and Well-being
- 13:50 Presentation on the Mnisi Project - Dr Darryn Knobel, Veterinary Tropical Diseases
- 14:00 Presentation on the Role of $\omega 6$ and $\omega 3$ Polyunsaturated fatty acids in preventing metabolic and genital diseases in transition cows in South Africa - Dr Giulia Esposito, Post Doc
- 14:10 DVD on 'Beauty and the Beef'
- 14:25 Policy: Ensuring more equitable access to international markets for sub-Saharan Africa's livestock producers through gaining wider acceptance of the principle of 'equivalence' – Prof Gavin Thompson, Veterinary Tropical Diseases
- 14:35 International perspective - what are the key research areas in line with Theme A in the international circles? Dr Jim Muir Director of Research, Ukulima Farm, Borlaug Institute, Texas A&M University
- 14:50 Local perspective - what are the key research areas in line with Theme A in South Africa? Mr Keith Ramsey, Scientific Manager: Livestock Development, DAFF
- 15:00 Open discussion on presentations and answering the question: what research should UP IFNUW focus on vis a vis Theme A and who should we involve? - Chaired by Prof Swan
- 15:30 Close - Prof Swan

Biographical sketches of speakers

Dr Jim Muir Director of Research, Ukulima Farm, Borlaug Institute, Texas A&M University was born in Angola but is a citizen of the United States of America. He holds a BSc Ecology from Wheaton College, MSc Agronomy from the University of Florida and a PhD Agronomy/Animal Science from the University of Florida - with a certificate in African Studies.

He worked in Mozambique between 1988 and 1997 with the Ministry of Agriculture and joined Texas A&M University, working as a plant/animal interface ecologist between 1997 and 2011. He is currently Research Director with Texas A&M University's Ukulima Farm in Limpopo, South Africa.

Mr Keith Ramsey is Scientific Manager: Livestock Development at the Department for Agriculture, Forestry and Fisheries. He is a Pretoria Boys High and University of Pretoria (BSc, BSc Hons – Animal Breeding and Physiology and MSc Reproductive Physiology) alumni. He worked for Dept development Aid for 20 years where he gained invaluable experience in the developing animal agriculture field – particularly in the socio cultural importance of livestock and communicating with stock owners. He specialised in small farm systems research and development and indigenous livestock. This included smallholder poultry models and integrated fish – poultry systems. He moved to DAFF in 1994 and was Registrar of Animal Improvement from 1994 to 2004. Mr Ramsey serves on the Board of Directors of Rare Breeds International and Heifer International – South Africa.

Prof Gerry Swan is Dean of the Faculty of Veterinary Science. He qualified as a Veterinarian in 1973 at the Faculty of Veterinary Science at Onderstepoort, was awarded a MMedVet specialist degree in Veterinary Pharmacology and Toxicology at the University of Pretoria in 1988 and his PhD (Pharmacology) at the Potchefstroom University, now the North West University in South Africa in 1997.



He spent short periods in private practice and state veterinary practices where after he served 10 years in the veterinary pharmaceutical industry - mainly as Manager of an International Animal Science Research Laboratory responsible for the development of veterinary medicines. In 1985 he joined the Faculty of Veterinary Science and progressed through the ranks starting as Senior Lecturer through Professor and Head of Department. In October 2005 was appointed the Dean of the Faculty of Veterinary Science, University of Pretoria, the position he still holds.

He has served on several national and international professional and expert bodies, including President of the South African Veterinary Association, Member of the Medicines Control Council (MCC) of South Africa, expert consultant to the WHO and OIE and as Fellow of the American Pharmacology Society. He was the longest serving member of the MCC from 1987 through 2009 (22 years) when he decided to step down.

He is a standing member of the Joint FAO/WHO Expert Committee of Food Additives (JECFA) dealing with risk assessment of veterinary product residues in food and has recently been nominated as a member of the SA Academy of Science. More recently he has been appointed to the SANParks Board.

He has published extensively with 74 scientific papers to his credit in ISI accredited scientific journals. His research is currently focused on wildlife and has recently contributed in the containment of vulture mortalities due to the Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) diclofenac, in Asia. He is a rated scientist with the NRF and has been the recipient of several professional and research awards. In 2005 he received the Sasol Vulture Conservationist award for his research on NSAIDs in vultures.

Prof Ned Donkin is Theme Leader for the Institute's Theme on Sustainable Production in a Resource-constrained Environment. He is an Associate Professor in the Department of Animal and Wildlife Sciences in the Faculty of Natural and Agricultural Sciences at the University of Pretoria. He is also the Research Theme Leader Sustainable animal and plant-based food production in a resource constrained environment in the Institute of Food, Nutrition and Well-being at the University.



Prof Donkin began teaching at the newly established Faculty of Veterinary Science at Medunsa (The Medical University of South Africa) in 1986. He has taught Animal Science and Veterinary students. The Milk Goat Project was established in 1987. In 1999 the Faculties of Veterinary Science were merged and the Milk Goat Project was moved to the Onderstepoort

Campus In 2005, after a rearrangement of the curriculum for Veterinary students, the Milk Goat Project was moved again to the Hatfield Research Farm of the University of Pretoria.

Research projects have lead to the development of practical management techniques, including feeding, kid rearing, fertility management and disease control. Examples of some significant research topics include:

- Crossbreeding and the effects on milk production and resistance to Heartwater.
- The use of lactoperoxidase in goat milk and the effects on cheese.
- Mastitis and withdrawal periods of antibiotics in milk goats.
- Goat kid rearing techniques.
- Leucaena as an alternative fodder resource for milk goats.

Professor Donkin is Vice-President of the International Goat Association.

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Dr Darryn Knobel's research focuses on the epidemiology and impacts of infectious diseases at the human-livestock-wildlife interface, and makes use of large-scale longitudinal population-based data collection systems as platforms for generating accurate and reliable data on disease incidence and the effectiveness of interventions.

He received his veterinary degree from the University of Pretoria, and a PhD in Tropical Animal Health from the University of Edinburgh. His PhD work received the University of Edinburghs Centre for Infectious Diseases Ker Memorial Prize for outstanding research in infectious diseases by a PhD candidate in 2008. Much of his post-graduate and post-doctoral research work has been conducted on infectious diseases affecting humans and animals in East Africa, and he has spent several years in Ethiopia, Tanzania and Kenya, working with colleagues from the medical field, and on a variety of animal species, both domestic and wild.

Prof Gavin Thompson (BVSc, MSc, PhD) graduated from Onderstepoort in 1966 and, after post-graduate training in immunology and virology in the UK, researched a number of viral diseases of animals and, latterly, was appointed Director of the ARC-Onderstepoort Veterinary Institute. From 1997-2006 he was an elected member of the OIE's Scientific Commission. In 2000 Gavin was seconded by the FAO to the African Union's Inter-African Bureau of Animal Resources and subsequently also worked for SADC on a European Union-funded FMD project until 2009. More recently, Gavin has acted as a consultant to various international organisations and business enterprises. He as an honorary appointment in the Department of Veterinary Tropical Diseases (UP).

Dr. Giulia Esposito's interest is on the reproductive physiology of dairy cows. She received her veterinary degree in Italy, where she worked in an in-vitro embryo production laboratory. She obtained a PhD in Production and Safety of foods of animal origin, focusing on the effect of pasture on milk and cheese quality and, at Cornell University (USA), the effect of CLA on metabolism and reproduction in transition dairy cows. She then moved to the University of Queensland (Australia) where she continued this research. She is currently a Post Doctoral Fellow at the University of Pretoria, focusing on immunity and physiology of transition cows.

University of Pretoria

**Launch of the Institutional Research Theme and
Institute for Food, Nutrition and Well-being**

Indaba Programme

**Indaba B:
Food Safety**

Monday, 28 May 2012

Graduate Centre L 1-56

Indaba B: Food Safety

Food safety is one of the emerging areas in food security and is currently contributing to the debate on food sovereignty. This Indaba will focus on the most critical challenges faced in food safety compliance across the food production and marketing chain and the need for regulatory control and the effective implementation of voluntary and compulsory standards.

Programme:

13h30 Welcoming Dean of the Faculty Law: Prof André Boraine

13h35 Introduction to the indaba: Food safety: Prof Lise Korsten

Food safety and SPS challenges

13h40 An international perspective on food safety: Dr Johann Ferreira

13h55 A local perspective on food safety research: Prof Elna Buys

14h05 A local perspective on SPS challenges, the fruit fly case study: Prof Chris Weldon

14h20 A government perspective on Food Safety challenges: Dr Boitshoko Ntshabele

14h35 Discussion: What should we be researching?

Food law and Food Sovereignty

14h55 A supportive legislative framework for South Africa: Prof Lise Korsten

15h00 A perspective from Environmental Law: implications for Agricultural and Food Law: Dr Ernst Basson

15h15 Food Law future challenges: Janusz Luterek

15h30 Discussion: Establishing partnerships to address future challenges

15:40 Summary and close – Prof André Boraine

Biographical sketches of speakers

Prof André Boraine is Dean of the Faculty of Law. He was previously the Head of the Department of Procedural Law from 1999 to October 2011. He was appointed as Senior Lecturer in the Department of Mercantile Law at the University of Pretoria in 1985, promoted to Associate Professor and to the rank of Professor in 1997. He holds a LLB (Pret) LLM *cum laude* (Wits) and LLD (Pret).

He is a co-founder and Director of the Centre for Advanced Corporate and Insolvency Law, which has been extensively involved in the drafting of new insolvency legislation. Prof Boraine is frequently invited to present papers at national and international conferences and he has published extensively in the field of Insolvency Law. He is co-author of the third edition of Silberberg and Schoeman's "*Law of Property*" and Meskin's "*Insolvency Law*". Both these volumes are regarded as leading textbooks in the respective fields of Property Law and Insolvency Law in South Africa.

Prof Boraine serves on the editorial panel of the International Insolvency Law Review. He also serves on the management board of the Academics Group of Insol International and is an Honorary Member of the Association of Insolvency Practitioners of South Africa. Recently he was appointed as a consultant to the World Bank for a diagnostic analysis of the legal framework in South Africa

Prof Lise Korsten is Theme Leader for for the Institute's Theme on Food Safety, Biosecurity, Public Health and Regulatory Control and a Professor in the Department of Microbiology and Plant Pathology. Her research has been published in 77 international peer-reviewed journal papers and 110 industry publications. She has registered 2 patents. She has graduated 45 Masters and PhD students.



She has also been actively involved in presenting research work at local (237) and international congresses (85) and has offered several specialists short courses for the industry in Good Agricultural Practices, Food Safety, Globalgap, Hazard Analysis Critical Control Point (HACCP) and risk assessment. Prof Korsten is currently a Technical Assessor for the South African National Accreditation Systems for Globalgap, ISO 22000, British Retail Consortium (BRC) certification bodies.

Six of her laboratories have been ISO 17025 accredited between 2002 – 2008 for several test methods that include microbiological testing for water, foodborne pathogens in packhouses and on fruit or vegetable products, identification of bacteria, total viable counts and PCR for Phytosanitary purposes for detecting fungal or bacterial plant pathogens. Prof Korsten is currently head of the thematic focus area within the University of Pretoria, Institute of Food, Nutrition and Well-Being.

She is also a board member of the National Laboratory Association of South Africa, the Postharvest Innovation Programme of the Department of Science and Technology and the Fresh Produce Exporters Forum. ✉ lise.korsten@up.ac.za

Dr Johan Ferreira (BSc (Hon) (University of Stellenbosch), MSc and Phd (University of Natal) in Plant Pathology) is a food retailer, agricultural researcher, manager of large and complex teams, systems thinker. Johan has spent the thirty years of his working life on both ends of the agricultural value chain. The first half was spent in agricultural research (on the input side of the chain) and the second in retail at the customer interface (as a member of the food executive team at Woolworths). This gives him an unusual capacity to bring different perspectives to bear on the current global challenges around food security. Until recently, he was Head of the the Foods Division of the Woolworths Good Business Journey Initiative - developing and influencing food retail strategies that are more aligned with environmental sustainability and social equity, ensuring a reduction in ecological footprint and supporting previously disadvantaged communities to gain access to the market place. Prior to that, as Head of Technology he was tasked with



ensuring food safety and quality and defending the reputation of the brand. Johan was instrumental in the initiation of the establishment of third party independent audits and standards for Woolworths products.

In his work as agricultural researcher, he headed teams of over 40 scientists working on close to 100 projects. His research focused on vegetables and ornamentals; the early detection, identification and breeding for resistance against pathogens in South Africa with a major focus on indigenous flowers, tomatoes and potatoes. He worked with farmers, agribusiness and the broader research community and academia, learning how to manage and support a diverse matrix of people, their interests and approaches.



Prof Elna Buys is an expert in food microbiology and food safety was recently appointed as the new Head of the Department of Food Science in the Faculty of Natural and Agricultural Sciences. Her research focuses on the effect that food processing has on the adaptation of pathogenic and spoilage bacteria, as well as the changes expressed on a molecular level, while also assessing the effect of the greater bacterial ecology in the food matrix. Prof Elna Buys is a C2-rated scientist with the National Research Foundation.

Dr Chris Weldon is an expert on the biology and control of tephritid fruit flies, which are recognised globally as destructive horticultural pests and pose a high biosecurity risk. He began working on the Queensland fruit fly during his PhD candidature at the University of Sydney and continued his work on this and other fruit fly species in two postdoctoral fellowships at Macquarie (Sydney) and Stellenbosch Universities. His research has influenced fruit fly SIT practice in Australia and globally. In particular, he has examined the fitness consequences of fruit fly mass-rearing and sterilisation, optimised the radiation dose required to sterilise Queensland fruit flies, and demonstrated that pre-release diet supplements lead to performance benefits for released sterile fruit flies. Now based in the Department of Zoology and Entomology at the University of Pretoria, Dr. Weldon is studying the stress tolerance of a number of African fruit fly species to predict which regions are suitable for their survival under current and future climate scenarios.



Dr Boitshoko Ntshabele is the Director Food Safety and Quality Assurance at the Department of Agriculture, Forestry and Fisheries (DAFF). He was previously the Deputy Director for Veterinary Public Health in North West Province and at DAFF. He has been appointed as an extra-ordinary lecturer at the Faculty of Veterinary Science, University of Pretoria (Onderstepoort) for a period of three years. He has represented DAFF at the Codex Commission, the World Trade Organisation (WTO) SPS committee and the World Animal Health

Organisation (OIE). He has presented on food safety and related topics at various workshops and conferences. He represents the DAFF on the faculty board, the South African Veterinary Council and the Wine and Spirits Board.

Mr Ernst Basson is in the commercial department in Johannesburg and specialises in environmental and natural resources law as part of the global legal practise of the SNR Denton group. SNR Denton is a top 25 international law firm (by number) operating in more than 60 locations worldwide with the oldest network of African law firms.



We have leading Energy, Environmental Change, Infrastructure and Project Finance teams. SNR Denton lawyers are global market leaders for energy, oil and gas, renewable energy, carbon and environmental projects, policy and transactions. The teams have extensive experience in various countries representing industry, developers, financial institutions, and governments.

Ernst has considerable experience in on-site environmental legal risk advice and conducts environmental legal compliance and due diligence reviews for foreign investors, financial institutions, certification, governmental and regulatory bodies with respect to leading companies in the mining, energy and manufacturing sectors in various African countries. He also acts as part of multi-disciplinary teams on EIAs, water, waste, atmospheric, marine and energy licenses, land development approvals and advises in environmental litigation and administrative appeals.

From time to time he teaches post graduate students and trains senior management in industry as well as the state's environmental management inspectors ("Green Scorpions") and environmental impact assessors and frequently addresses conferences. As a former advocate with the State he was a specialist public law advisor during the CODESA negotiations for the South African Constitution.

His qualifications include: B Juris LLB LLD, Attorney of the High Court of South Africa. Ernst read for his doctoral degree in law (LLD) at Potchefstroom in South Africa and as a DAAD scholar at the Max Planck Institute for Foreign Public Law and International Law in Heidelberg, Germany. He conducted postdoctoral research as a Fulbright scholar in the USA.

Janusz F. Luterek's qualifications include a B.Eng (Chemical) and a B.Proc. He is an admitted attorney of the High Court of South Africa, a patent attorney and a registered professional engineer. Janusz is also a member of several professional, industrial and legal societies. In 2001 Janusz passed the Australian Institute of Patent and Trademark Attorneys patent drafting examination. Before joining the profession, Janusz worked in the chemical, food and beverage, and pharmaceutical industries for a number of years. Janusz's current activities include patent drafting, litigation, searching,



providing opinions on novelty and infringement of patents and designs, and prosecuting local and foreign

patent and design applications. Janusz is fluent in English, Afrikaans and Polish and reads Czech. Janusz is also a director of Routledge-Modise Inc's intellectual property group.

Janusz's technical fields of specialization include petrochemical engineering, food and beverage engineering, pharmaceuticals, catalysis, IT and business method related patents while also handling some mechanical and electrical patent applications.

About Theme B: Food safety, biosecurity, public health and regulatory control

The aim of this theme is to provide a common interactive platform for animal-, plant- and human health within the overarching theme of food safety, as it relates to the detection, monitoring and risk based assessment and prevention of foodborne pathogens and regulatory compliance in the field of SPS to ultimately prevent technical barriers to trade (TBT).

Food safety is an increasingly important public health issue and governments across the world are intensifying their efforts to improve not only the quantity and quality but also the safety of national food supplies. Industry, on the other hand, is increasingly adopting multiple international voluntary food safety standards to ensure compliance within the whole supply chain. This approach also ensures market access in compliance with sanitary and phytosanitary (SPS) requirements. As a result of increasing global trade, many disease outbreaks due to foodborne pathogens or other illnesses associated with the consumption of chemical contaminated food (mycotoxins, heavy metals, excessive pesticide residues etc.) may take on global dimensions. Current global trade in agriculture and food are playing an important role in providing a wide variety of safe and nutritious food for the world's populations. In most developing countries, trade in agriculture and food provides opportunities to earn much-needed foreign exchange. Export is also important to stimulate economic growth, create employment and ultimately support food security. In most African countries, agriculture is one of the main economic sectors that can contribute to human health and general well-being. Ensuring safe, nutritious food is therefore essential for prosperity and political stability.

South African with its dualistic economy provides a unique interactive platform for other African countries in the form of access to a well-established export infrastructure, support system and regulatory base as well as expertise and technical competence in voluntary standards, disease diagnostics and accreditation. Given that this strong foundation is being eroded by lack of capacity loss of technical competence and not being maintained to ensure latest technology, dedicated equipment and state-of-the-art centralised infrastructure it is proposed to establish a national central accredited food safety diagnostic centre for the Institute that can address the many challenges trade related SPS and basic food security challenges. By providing supportive training, mentoring and research in food safety, food law, accreditation and certification as well as SPS and pest risk assessment challenges a valuable national resource will be established for South Africa that can contribute to food security and trade.

Comprehensive monitoring and evaluation of risks within the SPS domain is required to support food security and ensure fair trade. Building competence and capacity to manage risks and promote household food

security and support trade will provide timely and much needed support in the African transformation agenda. Providing diagnostic capacity and a centre of excellence based on risk assessment principles of food security and SPS matters of national interest, will also support effective governance, community health and increase trade, through self-regulation and compliance with best practices and regulatory control.

A special focus in this theme is also placed on addressing food sovereignty as an outcomes since diagnostic capacity, competency and infrastructure and supportive regulatory systems is required for all components of plant-, animal- and human health to ensure community health, sustainability, food security, market access and fair trade opportunities. Social protection in this context forms an essential cornerstone of food safety and the right to safe, nutritious and adequate food supplies. Food safety compliance in the “farm to the fork” supply chain continuum from the “quality water for healthy and safe plants –animals and ultimately community health will be the main focus of the research programme together with the development of a strong national food safety research, development and diagnostic framework.

Overarching with other themes, a special link will focus on food safety and the regulatory and legislative issues that affect technical barriers to trade and also aspects that relate to consumer protection and well-being. An overarching programme with the new Water Institute is therefore envisaged moving from healthy safe quality adequate water supplies to healthy safe plants/ animals and communities- building a bridge between sound research and training to community awareness and well-being.

University of Pretoria

**Launch of the Institutional Research Theme and
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Indaba Programme

Indaba C:

**Can our indigenous African foods alleviate
malnutrition and obesity in South Africa?**

Monday, 28 May 2012

Graduate Centre L 2-69

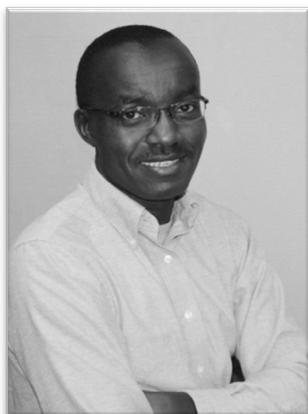
Indaba C: Can our indigenous African foods alleviate malnutrition and obesity in South Africa?

Functional foods and staple food biofortification are critical current global nutrition research themes. At this *Indaba*, participants will explore the unique nutritional and health-promoting attributes of our indigenous African grains, leafy vegetables and meats and their role in improving nutrition and reducing the incidence of lifestyle diseases in South Africa.

Programme:

- 13:30 Welcome by Indaba Chair – Prof Amanda Minnaar, Professor in Food Science
- 13:40 Official Opening of Indaba – Prof Anton Ströh, Dean: Faculty of Natural and Agricultural Sciences
- 13:50 Overview of the Functional Biomolecules and Health-promoting Foods Theme – Prof John Taylor, Theme Leader for Theme A, Institute for Food, Nutrition and Well-being
- 14:20 Presentation on African Grains as Health-promoting Functional Foods - Prof Joseph Awika, Texas A&M University, USA
- 14:50 Presentation on Indigenous foods: Meeting Public Health Challenges in southern Africa - Dr Mieke Faber, Medical Research Council
- 15:20 Open Discussion Chaired by Prof Andre Oelofse, Centre for Nutrition - Getting Research Outputs into Policy and Practice
- 15:45 The Way Forward: Partnership Opportunities Chaired by Prof Hettie Schönfeldt, Animal and Wildlife Sciences
- 15:55 Formal closing of Indaba and vote of thanks – Prof Anton Ströh

Biographical sketches of speakers



Prof Joseph Awika is a faculty member at Texas A&M University, USA (since 2008), where he teaches and conducts research on grain chemistry and quality. He is currently investigating how small molecules in grains are altered during food processing and how these changes affect specific outcomes related to disease prevention. His international activities involve ongoing collaborations with scientists in Zambia, Kenya, South Africa, and Mexico. He was previously on faculty at University of Missouri, and Arkansas State University. Joseph obtained his PhD from Texas A&M University in 2003, and BS degree from Egerton University, Kenya.

Presentation Abstract: African Grains as Health-promoting Functional Foods

This presentation will set out the available scientific evidence for the health benefits of indigenous African cereal grains, with emphasis on sorghum, and discuss why sorghum seems to provide better health benefits than other grains like maize or wheat. It will also cover the opportunities for synergistic health benefits of indigenous cereals and legumes based on their distinct differences in composition of bioactive compounds. In addition, benefits to over- and under-nutrition will be explained.

Dr Mieke Faber is a chief specialist scientist at the South African Medical Research Council and an extraordinary Professor at the University of the Western Cape. A large part of her research is on the integration of agriculture and nutrition for improved food and nutrition security. For the past 10+ years she has been working, together with the Agricultural Research Council, on a food-based approach to address vitamin A deficiency. She has extensive experience in assessing dietary intake and nutritional status, particularly in infants and young children in rural areas. In 2010 she received the Nutrition Society of South Africa Award in recognition for her outstanding contribution to nutrition research in South Africa.

Presentation Abstract: Indigenous foods: meeting public health challenges in Southern African

A low intake of vegetables and fruit is among the top ten risk factors contributing to mortality worldwide. Affordability and availability are major constraints for a frequent intake. Wild-growing traditional leafy vegetables could potentially make an important contribution towards combating micronutrient malnutrition, have a protective effect against certain non-communicable diseases and provide food security.

When promoting traditional leafy vegetables for improved nutrition, factors affecting nutrient content and its bio-availability need to be considered. The nutrient content of the leaves is affected by food processing, different cooking methods and the use of certain food additives. Nutrient content is often reported for the raw leaves, and expressed in terms of dry mass. To determine their potential contribution towards nutritional requirements for individuals, nutrient content needs to be available per cooked edible portion. The bioavailability of micronutrients in leafy vegetables is affected by substances that can either inhibit or enhance nutrient absorption.

Promoting frequent consumption of traditional leafy vegetables within the context of a diversified diet within communities may, however, not be that easy, as people are not always aware of their nutritional value and, more importantly, traditional foods are often regarded as inferior. The image of these crops could be improved through culture-sensitive awareness-raising, but this should be based on sound scientifically generated data reflecting the nutritional composition of the food as eaten.

Prof Anton Ströh has been Dean of the Faculty of Natural and Agricultural Sciences since May 2004. He completed his postgraduate studies at UP where he obtained his BSc (Honours) and MSc degrees cum laude and was awarded his PhD in 1989 at the age of 24. In 1988 he was appointed as Lecturer in the Department of Mathematics and Applied Mathematics. In 1994, the renowned Banach Centre in Warsaw invited him to do research for a period of six months. During this visit, he completed a Riesz decomposition theory relative to closed ideals in operator algebras by solving - in its most general form - a question on ideal structures of operator algebras with Prof L Zsido from Rome, Italy. In July of the same year he received the University's Young Researcher of the Year Award. Prof Ströh was promoted to Associate Professor in 1996 and to Professor in 2000. At the same time, he was appointed as the Head of the Department of Mathematics and Applied Mathematics.

In 2000 he was appointed as the Chairperson of the School of Mathematical Sciences, which consisted of the departments of Mathematics and Applied Mathematics, Statistics and Insurance and Actuarial Science. In 2008 he was elected by Senate as a member of the Council of the University and by Council on the Standing Committee of Council in 2010. He was elected as Chair of the National Science Deans Forum (NSDF) in 2009.

Over the past ten years, Prof Ströh has made significant contributions to the research field of functional analysis with interpretations in quantum statistical mechanics. In a series of papers, starting with a fundamental paper of more than 50 pages published in 2003 in the *Journal of Operator Theory*, Prof Ströh and his local and international collaborators introduced the notions of ergodic theory, mixing and recurrence properties in quantum dynamical systems for the first time. This work has gained considerable attention worldwide.

Prof Ströh has delivered papers at various local and international conferences and has been an co-organiser of five international conferences. He is the author of various research articles in internationally accredited journals. In 2001, he received a gold medal from the South African Mathematical Society for his contribution to research capacity building and in 2003, 2006, 2009 and 2012 he received an Exceptional Achievers Award



from the University of Pretoria. He is currently recognised internationally for the significant contributions in his research field and holds a B2 rating from the National Research Foundation (NRF).



Prof John Taylor is Theme Leader for the Institute's Theme on Functional Biomolecules and Health-promoting Foods and a Professor of Food Science. His research focuses on the science and technology of African cereal grains, especially sorghum and millets. John is author of over 130 papers in peer-reviewed scientific journals, 21 book chapters, many technical reports to industry, and has co-edited a monograph on Pseudocereals and Less Common Cereals. He has supervised over 70 PhD and MSc graduates.

John is an Editor of the Journal of Cereal Science and a member of two other journal editorial boards. During 2009-2010 he served as President of the International Association for Cereal Science and Technology. He is a B1 rated scientist with the South National Research Foundation and recipient of several awards, including: Member of the Academy of Science of South Africa, AACC International's Excellence in Teaching Award, Fellow of AACC International, Fellow of the International Academy for Food Science and Technology, and recipient of the University of Pretoria's Chancellor's Award for Research.

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Presentation Abstract: Overview of the Functional Biomolecules and Health-promoting Foods Theme

In South Africa and across Africa we are faced with two chronic nutrition and health related challenges: malnutrition (strictly speaking undernutrition) and overnutrition; the former causing horrendous levels of child mortality and very widespread nutritional deficiency diseases such as Protein-Energy Malnutrition, night-blindness and anaemia, the latter being associated with the so-called Western Lifestyle Diseases such as cardiovascular disease and Type II diabetes.

The functional biomolecules and health-promoting foods theme is concerned with research, development and implementation of "Biofortified Foods" to improve nutrition and health. Biofortified foods are foods which are naturally enhanced with macro- and micro-nutrients and with functional (disease-preventing) biomolecules. The focus of our work is on indigenous African grains, leafy vegetables and animal foods as they are uniquely rich in phytochemicals and other bioactives.

Contact details

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University of Pretoria

**Launch of the Institutional Research Theme and
Institute for Food, Nutrition and Well-being**

Indaba Programme

Indaba D:

**Strategies for schools to contribute to nutrition
and well-being**

Monday, 28 May 2012

Graduate Centre L 1-64

Indaba D: Strategies for schools to contribute to nutrition and well-being

Childhood malnutrition limits development efforts in South Africa and the African Continent. During this *Indaba* experts, policy makers, school leaders and researchers will share unique perspectives on the role of schools as channels to facilitate sustained nutrition by involving children and communities.

Programme:

- 13:30 Welcome – Prof Irma Eloff, Dean of the Faculty of Education
- 13:40 Overview of the “Facilitating behaviour change for improved health and well-being” theme – Prof Ronél Ferreira, Theme leader, Institute for Food, Nutrition and Well-being
- 13:50 Current research projects in the field:
- Ms Gerda Gericke and Dr Zelda White (Human Nutrition)
 - Dr Annemarie Viljoen (Consumer Sciences)
 - Dr Peet du Toit (Physiology)
 - Prof Ronél Ferreira (Educational Psychology)
- 14:40 How schools enhance the health and well-being of children and communities: Showcasing an example - Ms Nombulelo Sume, Principal: Charles Duna Primary School
- 15:10 Introducing the current school-based project – Prof Ronél Ferreira, Ms Gerda Gericke and Dr Peet du Toit (Principal Investigators)
- 15:30 Open discussion and input to the project from external stakeholders – Prof Ronél Ferreira as Facilitator
- 15:50 Formal closing of Indaba and vote of thanks – Prof Irma Eloff

Biographical sketches of speakers



Prof Irma Eloff is the Dean of the Faculty of Education at the University of Pretoria. She is an NRF-rated researcher and registered psychologist. She works in positive psychology, early intervention and inclusive education and has received several awards for her research in Education and Educational Psychology. She studied at the Universities of Pretoria, Stellenbosch and Northwest, receiving both her Honours- and Master's degrees with distinction.

Prof Eloff has been a visiting professor at Yale University during 2001-2002 and has presented lectures across the globe. She is a past President of the Education Association of South Africa and currently the Chair of the Education Commission of the *SA Akademie vir Wetenskap en Kuns*.

Prof Eloff has published more than 55 academic articles and book chapters and 45 master's and doctoral students have completed their studies under her supervision. She co-authored the book *Life Skills & Assets* and is co-editor of the book *Keys to Educational Psychology*.

Prof Ronél Ferreira is Theme Leader for the Institute's Theme on Behavioural Change for Improved Health and Well-being. Her research focus areas are psychosocial support within the context of vulnerability, psychological well-being of children and communities; HIV&AIDS, asset-based psychosocial coping, and the use of action research in combination with intervention-based studies that could improve community-based coping and facilitate community development and well-being.



She is involved in various research projects, some of which involve international affiliations. She actively aims to involve postgraduate students in broad research projects and joint publications. Her research accomplishments are signified, amongst others, by being a rated researcher at the South African National Research Foundation (NRF) and the recipient of the Samuel Henry Prince Dissertation Award of the International Sociological Association (2009).

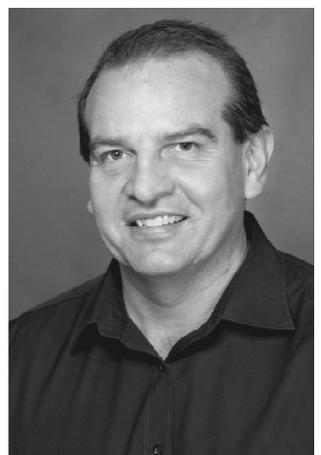
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Ms Nombulelo Sume holds a Teacher's Diploma from the Cape College of Education, a BA from VISTA University, a BEd (Hons) from VISTA University, and an Advanced Certificate in Education: Leadership and Management from Nelson Mandela Metropole University. She is currently working on her proposal for a MEd study. Ms Sume started her teaching career in 1989 when appointed as teacher at Emafini Primary School. In 1998, she was promoted to school principal at Charles Duna Primary School, where she still holds the position and is recognised as dynamic and creative leader in the community. Some of her current projects



include steering the school's involvement in the Umanyano Community Schools Project (steered by the Nelson Mandela Metropole University), and implementing a parental literacy programme at school, in collaboration with an organisation based in the United States of America. In addition, she has actively lead the school's involvement in a participatory research project of the University of Pretoria since 2007, which resulted in several initiatives at the school in support of vulnerable children and community members.

Dr Peet du Toit's research expertise lies in the fields of Health Sciences, Physical Sciences and Medical Sciences (clinical). He specialises in Sports vision, Corporate wellness and Biomechanical performance. He strives towards actively involving postgraduate students in research projects and envisions involving several Physiology students in developing a wellness program as part of the relevant IRT theme's research project, with the ultimate aim of promoting a healthy workplace. Even though health and wellness has different meanings to different people, Dr du Toit believes that the definition of this concept should include physical fitness, emotional health, spiritual health and different aspects of hand-eye co-ordination. As such, he adds expertise in terms of fitness, which is often thought of in terms of strength, endurance, flexibility and body composition, as well as motor skills, which bridges the gap between fitness and technical ability and is viewed as vital in training for sporting excellence.



Ms Gerda Gericke has supervised several theses for the M Dietetics degree on food intake (consumption, dietary variety and diversity) and eating behaviour (in the qualitative and quantitative research domains) which has added to her experience in the development of appropriate mixed method methodologies. Ms Gericke was actively involved in the National Food Consumption Survey – Food Fortification Study (NFCS-FB) in 2005. She was responsible for developing and verifying the Knowledge, Attitude and Behaviour Questionnaire that was nationally used with 1200 women, for data collection and quality control in two provinces, and for interpreting and reporting the findings. In 1999 she was involved in a similar national study (National Food Consumption Survey-Food Fortification Baseline Study I) on the food consumption of young children, involving 2894 children and households. Following her research, she is co-author of a WHO publication on food security (Article ID: BLT.11.089243).

Dr Annamarie Viljoen's teaching experience includes the subjects of Foods, Nutrition and the Socio-cultural aspects of Foods at undergraduate and postgraduate level. In her doctoral thesis she described the food practices of a South African community from a socio-cultural and socio-psychological perspective. Her research interest relates to food practices of the different cultural and ethnic groups in Southern Africa. Apart from publishing a number of papers on this topic she also read various papers at national and international congresses on the topic. She participated in community outreach projects in Mamelodi and Soshanguve respectively, where urban agriculture was promoted to improve the nutritional adequacy of people living in informal settlements. She is a registered dietician with the HPCSA.



Dr Zelda White is a Nutritionist Dr White with a good knowledge base in basic and advanced nutrition and how diet-related behaviours can affect health outcomes. Dr White has basic and advanced training in good clinical practice and experience in quantitative research methodology. She has been involved in several experimental research studies and can use her expertise in the planning and execution of research studies.

University of Pretoria

**Launch of the Institutional Research Theme and
Institute for Food, Nutrition and Well-being**

Indaba Programme

Indaba E:

Food policy and impact assessment

Monday, 28 May 2012

Graduate Centre L 1-68

Indaba E: Instruments for evidence-based food security policy and programme planning

No standard measures exist internationally for food security measurement and monitoring. However, being able to quantify and map food security is crucial for effective programme design and targeting of assistance and informing policy design. Participants in this *Indaba* will participate in a gap analysis exercise comparing international practice and the impact assessment needs of food security programmes.

Programme:

- 13:30 Welcome and introduction to the IRT by the Chair - Prof Buch, Dean of the Faculty of Health Sciences
- 13:40 Introduction to Theme E and our strategy for the future – Prof Sheryl Hendriks, Director of the Institute for Food, Nutrition and Well-being
- 13:50 Presentations on current projects:
- Family Health Research** – Prof Jannie Hugo, Head of Family Medicine
 - Mnisi project and platform** – Mr Jacques van Rooyen, Para clinical Science
 - Bureau for Agriculture and Food Policy (BFAP)** – Prof Johann Kirsten, Head of Department Agricultural Economics, Rural Development and Agricultural Extension
- 14:15 The African policy context – Prof Richard Mkandawire, Vice President of the Agricultural Fertiliser and Agribusiness Partnership
- 14:30 International perspective on evidence-based analysis for food policy - Dr Ousmane Badiane, Africa Director International Food Policy Research Institute
- 14:45 What is the SA government doing regarding monitoring and evaluation for performance-based accountability? - Dr Tsakane Ngomani, Outcomes Facilitator for Outcome 7, President's Office Department for Performance Monitoring and Evaluation
- 15:00 Discussion - what research should the Institute focus on vis a vis Theme E and who should partner us?
- 15:45 Close and vote of thanks – Prof Eric Buch

Biographical sketches of speakers

Dr Ousmane Badiane is the Africa Director for the International Food Policy Research Institute (IFPRI). In this role, he coordinates IFPRI's work program in the areas of food policy research, capacity strengthening, and policy communications in Africa. He is also in charge of IFPRI's partnerships with African institutions dealing with the above areas.

Dr Badiane, a national of Senegal, was Lead Specialist for Food and Agricultural Policy for the Africa Region at the World Bank from January 1998 to August 2008. He previously worked at IFPRI as Senior Research Fellow from 1989 to 1997, when he led the institute's work on market reforms and development. While at IFPRI, he taught, as Adjunct Professor, at Johns Hopkins' School of Advanced International Studies from 1993 to 2003. Dr Badiane received a Masters Degree and PhD in Agricultural Economics from the University



of Kiel in Germany, and Doctorate Degree *Honoris Causa*, or distinguished contribution to African Agriculture and Development, from the University of KwaZulu-Natal, South Africa.

Dr Badiane has played a lead role in the mobilisation of support for the Comprehensive Africa Agriculture Development Programme (CAADP) and has led the empirical analysis behind the national stock taking and scenario testing for growth models adopted in the development of the national agriculture and food security investment plans.

Prof **Richard Mlomboji Mkandawire** is a socio-economist and rural development expert. He is a graduate of the University of Malawi (Bachelor of Social Science), University of Missouri, Columbia USA (MA and MSc.), and the University of East Anglia, UK (PhD). Prof Mkandawire has previously taught in the Universities of Malawi, Zambia, and in South Africa. He is currently Vice President of Africa Fertilizer Agribusiness Partnership, before taking this position he worked as a Senior Advisor to New Partnership for Africa's Development (NEPAD), and leading the conceptualization and facilitation of regional and country ownership of the Comprehensive Africa Agriculture Development Programme (CAADP).



Prof Mkandawire has received the following awards for his work in spearheading the CAADP agenda: awarded an Honorary Doctorate in 2009 (DSc *Honoris Causa* University of KwaZulu-Natal) for spearheading the CAADP agenda and rallying continental and global support towards agriculture in Africa and the 'Drivers of Change' award in 2008 for leadership in advocating and convincing African leaders and the international community that Africa can muster the ability and political will to overcome hunger and poverty through CAADP.

Between 1992 and 1999 Prof Mkandawire worked with the Commonwealth Secretariat as the Commonwealth Youth Programme Regional Director for Africa. He has extensive experience in development initiatives in Southern Africa spanning a period of over two decades. He has researched and published extensively in the following areas: agriculture and food policies in southern africa, artisanal fisheries development, land tenure systems and agrarian development, gender and development and the youth and reproductive health among other areas.



Dr Tsakani Ngomani completed her PhD (cum laude) in Agricultural Extension and Education at the Pennsylvania State University, USA. She was appointed Senior Lecturer in Agricultural Extension at UP in 2009 and seconded to the President's Office Department for Performance Evaluation and Monitoring as Outcome Facilitator for Outcome 7 in 2010. She has served the South African Public Service as Chief Director and Director of Agricultural Research, Extension and District Services at the Department of Agriculture, Limpopo Province and was Deputy Director-General: Operational Education Management for the Limpopo Department of Education where she was responsible for providing education management services, promote the quality of teaching and learning and render education regional services.

She was the first female and two-term President of the Advisory Board for the Technical Centre for Agriculture and Rural Development (CTA), ACP-EU, based at The Netherlands. She has received several awards,

including the Outstanding Penn State Graduate Student Award in 2004, the 1st Top Fulbright Scholar Award (now known as Amy Biehl Award) for the year 2000, research fellowships from the Social Sciences Research Council (SSRC) in New York, the American Association for University Women (AAUW) and the South African National Research Foundation.

Dr Ngomane served as the lead local consultant for a team of international researchers commissioned by the Department of Agriculture in partnership with the German Technical Cooperation to develop a strategic framework for the re-orientation and renewal of the Limpopo Department of Agriculture. In her independent professional capacity, Dr Ngomane was amongst a small team of experts nominated, post the Johannesburg 2002 World Summit on Sustainable Development, to establish an institutional framework for the World Bank's international impact assessment study investigating the socioeconomic role of Science and Technology on Sustainable Rural Development.

Prof Eric Buch is Dean of the Faculty of Health Sciences. He is a medical doctor and registered specialist in Community Medicine. Prior to his appointment as Dean of Health Sciences in 2000, he was Professor of Health Policy and Management in the School of Health Systems and Public Health at the University of Pretoria and Health Adviser to the New Partnership for Africa's Development (NEPAD).



Before joining the University of Pretoria, Prof Buch was Deputy Director General for Health Care of Gauteng; Executive Director for Health, Housing and Urbanisation of metropolitan Johannesburg and a founder and Director of the Centre for Health Policy at the University of the Witwatersrand. He served as General Secretary of the National Progressive Primary Health Care Network and was an active member of the National Medical and Dental Association. He began his career with an MRC research fellowship and by co-founding the Wits Rural Health Services Development Unit in Bushbuckridge, where he co-ordinated the team that ran one of the first Primary Health Care (PHC) nurse training courses. He is a founding member of the Board of the Global Health Workforce Alliance.

Over the past 30 years Prof Buch has gained executive experience in academic, government, NGO and global health environments in the fields of health policy and management, health systems, the health workforce and in research, education and community service and has built skills in strategic development. Over the past decade he has grown his expertise in the field of Human Resources for Health at the continental and global levels.

Prof Sheryl Hendriks is the first Director the Institute for Food, Nutrition and Interim Theme Leader. Her home Department is the Department of Agricultural Economics, Extension and Rural Development in the Faculty of Natural and Agricultural Sciences. Sheryl holds a BSc Home Econ, BScHons Home Econ, MSc Home Econ and PhD in Agricultural Economics – all from the University of Natal. She is a transdisciplinary food security specialist focusing on understanding household vulnerability, food policy and food security measurement. She is a passionate about postgraduate training and capacity development to strengthen African capacity for sound food policy and food security programme design.

She plays a number of strategic advisory roles in international and African food security issues, having led the drafting and consultation on the first regional food security plan of action – the African Union and New Partnership for Africa's Development's Comprehensive African Agricultural Development Programme's (CAADP) Framework for African Food Security. She led the first international technical review of African national investment plans that has established the blueprint for review of national agricultural and food security investment plans in Africa and is a requirement for African governments applying for funds from the Global Agriculture and Food Security Programme Multidonor Trust Fund.



She is one of three African food security experts appointed to the Committee for World Food Security (CFS) High Level Panel of Experts for Food Security and Nutrition (HLPE). The CFS is the foremost international and intergovernmental platform dealing with food security and nutrition. She is a member of the Advisory Board of the International Transform Nutrition Programme and served on the Advisory Boards of the United National Development Programme Human Development Report on Food Security Capacity in Africa (released May 2012) and the African Capacity Development Foundation's African Food Security Capacity Report (also released in May 2012). Prof Hendriks is the first female president of the Agricultural Economics Association of South Africa (AEASA).

She is an NRF rated researcher and has published 31 peer reviewed journal papers, 3 books, 15 chapters in books and regularly presents invited papers on African food security at international conferences. One of her most prized contributions to food security in Africa is the supervision of 31 Masters and 8 PhD graduates from 16 African countries.

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Mr Jacques van Rooyen holds a BSc (Agric) Animal Science, BSc (Hons) Wildlife Management, MSc (Agric) Animal Science and is a PhD candidate in Veterinary Tropical Diseases. Jacques is an animal scientist and ecologist with extensive experience in wildlife management in southern



Africa. He is currently a research officer in the Department of Veterinary Tropical Diseases at the Faculty of Veterinary Science, University of Pretoria where he mainly focuses on One Health related research topics associated with the livestock-wildlife interface. His research interests are multidisciplinary, integrated systems approaches to all aspects of livestock health and production, rural development and conservation in resource constrained communities at the livestock-wildlife interface in southern Africa. He is the research coordinator of the Mnisi Community Programme of the University of Pretoria through which he is conducting his PhD.



Prof. Jannie Hugo (MB ChB, M Fam Med) is a family physician and Head of Department for Family Medicine at the University of Pretoria responsible for Community Engagement for the Faculty of Health Sciences. Before that he worked for 17 years at Medunsa. He is on the executive and several committees of the Medical and Dental Professions Board of South Africa, director of the Rural Health Initiative (RHI) where he initiated a rural recruitment programme that developed into the establishment of African Health Placements (AHP), an NGO recruiting health professionals for rural and underserved areas in Southern Africa. He is also a founder-researcher of the Madibeng Centre for Research (MCR) in Brits and a director of Enableded, a managed health care organization.

His interest is education in primary care, the consultation, the management of primary care services, district and rural health and the development of district campuses in urban and rural areas. He published about the consultation, district clinic health services, the management of district hospitals and training in primary care. For three years (2003 -2006) he was the facilitator of a project in the development of family medicine training in SA and initiated the development of a midlevel medical worker programme for SA. At MCR he is also involved in Microbicide research.



Prof. Johann Kirsten, is Professor and head of the Department of Agricultural Economics, Extension and Rural Development at the University of Pretoria. He has published 112 articles in peer reviewed journals as author and co-author and also co-edited 4 books. A total of 51 Master's students and 20 PhD students completed their studies under his supervision. His main research interests relate to the commercialization of farming in poor communities, land reform, and agricultural policy in general. Recently his research focus also include aspects related to price transmission and the role of market power in supply chains and the economics of origin based foods. He served as a council member of the National Agricultural Marketing Council in South Africa from 2001 to 2011. He also served as the Vice-President of the International Association of Agricultural Economists for the period 2006 – 2009.

Theme E: The food security and nutrition impacts of policies and programmes

The aim of this theme is to provide strategic evidence-based guidance on food security and nutrition impact of national and regional policies and programmes to support self-reflection, learning, dissemination of best practice and influence policy reform and strategic planning in Africa.

This will include a focus on:

- Identification of policy instruments for managing risk to promote household food security (availability, access and diversification of consumption) and sustainable livelihoods.
- Promoting nutrition-sensitive value chains

- Providing practical models for social protection
- Monitoring and evaluation of impact

In addition, the research team for this theme will provide guidance, input and impact assessment for the other components of the institute with regard to the above four areas to assist in ensuring significant impact of the various themes and projects on food safety and security; nutrition and well-being.

Rationale for the Theme

The Comprehensive Africa Development Programme (CAADP) provides Africa with a framework for achieving these goals but considerable policy support is needed in-country and across the Regional Economic Commissions. Empirically based evidence for influencing policy reform is lacking and monitoring and evaluation systems are still based on agronomic and food balance systems. These ignore the need to understand the impact of policies and programmes on intended beneficiaries and comprehensive monitoring and evaluation of the multiple facets of food security. Identification of policy instruments for managing risk to promote household food security (availability, access and diversification of consumption) and sustainable livelihoods will provide timely and much needed support in the African transformation agenda. Providing strategic evidence-based guidance on food security and nutrition impact of national and regional policies and programmes will support self-reflection, learning, dissemination of best practice and influence policy reform and strategic planning in Africa.

A special focus on price volatility and the transmission of price hikes to consumers are emerging areas of research internationally. Very little is understood regarding the drivers of volatility and the impact on rural households and smallholders. While higher prices are good news for farmers, reduced purchasing power affects consumption behaviour among consumers and ultimately affects nutrition and well-being.

Two areas of research neglect will supplement this research agenda in promoting nutrition-sensitive value chains and providing practical models for social protection. Both are new areas of focus in Africa and for which little information on appropriate models, strategy options and best practice exists. A special focus on food safety and the regulatory and legislative issues that acts of constraints/barriers and also protect consumer health will be considered. There is a great deal of focus on the development of agricultural value chains, but very little thought has been put into how such development can contribute to much needed broad-based development, bring the most poor into the growth agenda and address crucial nutrition problems. Simple adjustments of the product mix; identification of non-farm opportunities; protecting and preservation of nutrients through processing; exploring alternative market channels and collective marketing opportunities can provide gender-sensitive, pro-poor growth opportunities to the most vulnerable and marginalised members of society. Promoting nutrition-sensitive value chain development can have significant benefits in terms of improved nutrition for children and other groups with special nutritional requirements (pregnant and lactating mothers, the elderly and the ill). This theme will also explore the impact of the non-farm sector on the rural economy in general and highlight the importance of public investments in infrastructure.

Social protection is a crucial tool for meeting the needs of the most poor and vulnerable. Without carefully designed programmes to provide the essentials for survival for segments of the population who are not able to

provide for themselves, ultimately reduces the burden on the state for emergency and crisis responses and plays an important role in mitigating hunger and poverty. Social protection programmes also have a role to play in social stability and reducing the reliance on international aid. Social protection programmes that provide transfers (food, cash or assets such as livestock) provide for those in need, protect vulnerable households and promote sustainable livelihoods. However, very little is known regarding the most appropriate options and models for efficient investment in development in Africa.